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BEFORE THE ARIZONA CORPORATION COMMISSION

Arizona Corporation Commission

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WILLIAM MUNDELL
    Chairman
JAMES M. IRVIN
    Commissioner
MARC SPITZER
    Commissioner

IN THE MATTER OF THE GENERIC
INVESTIGATION INTO U S WEST
COMMUNICATIONS, INC.'S
COMPLIANCE WITH CERTAIN
WHOLESALE PRICING
REQUIREMENTS FOR UNBUNDLED
NETWORK ELEMENTS AND
RESALE DISCOUNTS.

DOCKET NO. T-00000A-00-0194

QWEST CORPORATION'S MOTION TO
STRIKE THE HAI MODEL SPONSORED
BY AT&T COMMUNICATIONS,
WORLDCOM, AND XO

I.   **INTRODUCTION**

Qwest Corporation ("Qwest") brings this motion to strike the HAI model, version 5.2a, that is being sponsored in this cost docket by AT&T Communications of the Mountain States, Inc. ("AT&T"), WorldCom, Inc. ("WorldCom") and XO Arizona, Inc. ("XO") (collectively the "Joint Intervenors"). The need for this motion arises from the Joint Intervenors' failure to produce the data relating to customer locations that are at the heart of the HAI model and that form the foundation for the amount of network investment that the model includes. The Joint Intervenors have failed to produce these data despite an oral ruling by the Administrative Law Judge requiring them to do so at no charge to Qwest. Counsel for AT&T has told counsel for Qwest that the Joint Intervenors do not have the data and that, at this point in the proceeding, the vendor that has custody of the data cannot provide access to it.

Without these data, the cost estimates that the HAI model produces cannot be validated and cannot properly serve as the basis for setting prices for unbundled network elements ("UNEs"). If the Commission were to use the HAI model to set prices for UNEs, it would have

1 to accept on faith alone that the model properly places customers in their locations and builds
2 enough network plant to reach them. A determination of this level of importance should be
3 based on data that can be thoroughly scrutinized; it should not be based upon proprietary data
4 that are in the hands of a third party that is not a participant in this docket and that were never
5 even reviewed by the sponsors of the HAI model. For this reason, the Commission should strike
6 the HAI model and all testimony relating to it from this proceeding.

7 II.   DISCUSSION

8   A.   The HAI Model's Reliance on Customer Clusters.

9   On May 16, 2001, the Joint Intervenors filed the HAI Model, version 5.2a, along with the
10 direct testimony of Douglas Denney who is presenting the model. In the description set forth in
11 his testimony, Mr. Denney explains that the model uses a "bottom-up" method for calculating the
12 cost of UNEs, meaning that it "constructs a network based on detailed and granular information
13 as to service demand, network component capacities and costs, and expenses." Attachment A at
14 11 (Excerpts from Direct Testimony of Douglas Denney). Mr. Denney explains that the starting
15 point for the model and the first step upon which all other steps in the model are based is
16 determining "the amount and location of current demand for local exchange service, network
17 elements, and network interconnection for the Incumbent Local Exchange Carrier ("ILEC") and
18 jurisdiction under study." Id. To establish the "location of current demand," as Mr. Denney
19 describes it, the model relies on "geocoded customer location data when available, combined
20 with a method of assigning surrogate locations when geocoded location information is not
21 available for all customers." Id.

22   After customers are placed in locations, they are grouped into clusters, and the resulting
23 clusters are associated "with serving areas that can be efficiently served by available local
24 exchange technology." Id. at 11-12. The clusters have a significant effect on the amount of
25 network-related investment that the model includes because they are specifically used "to
26 estimate the type and amount of outside plant" required to serve customers. Id. at 22. For

example, the make-up of a cluster will determine the amount of feeder and distribution plant that the HAI model assumes will be needed to serve a group of customers and, in turn, the amount of network-related investment that is required. The customer location data is gathered by a third party vendor, TNS, and that vendor uses these data to create the clusters that the HAI model uses.

B. The Joint Intervenors' Failure to Produce Cluster Data in Response to the Discovery Ruling of the Administrative Law Judges.

Given the close relationship between the customer locations and clusters that the HAI model uses and the cost estimates that the model produces, Qwest issued data requests that sought the production of the data the model relies upon to locate customers and create the clusters. As described in a motion to compel that Qwest filed on June 27, 2001, AT&T and XO objected to these requests on the ground that they do not possess the data, and that "[a]ny software and/or inputs used to derive customer locations are the intellectual property of TNS and are commercially available for TNS." See Qwest Corporation's Motion to Compel Responses From Joint CLECs to Qwest's Data Requests and Request for Expedited Ruling at 9. Qwest requested the data from TNS, but TNS demanded a payment of at least $9,000 to review the data.

At the pre-hearing conference on July 5, 2001, in response to Qwest's motion to compel, the Administrative Law Judge ordered the Joint Intervenors to contact TNS and to attempt to make the customer location and cluster data available to Qwest without a charge. However, on July 9, counsel for AT&T and XO told counsel for Qwest that the Joint Intervenors do not have the data and that Qwest cannot have access to the data without paying TNS for it. On July 11, counsel for AT&T and XO stated further that, at this point in the proceeding, TNS will not provide Qwest with access to the data, regardless of whether Qwest could pay for it.

As it turns out, the Joint Intervenors themselves, including Mr. Denney, have never even seen the customer location data that were used to create the clusters that the model uses. In a recent deposition, Mr. Denney explained that TNS, a third party vendor based in Pennsylvania, obtains customer location data from two sub-vendors, MetroCall and Dunn and Bradstreet.

Using the proprietary data of these sub-vendors, TNS groups customers into proprietary clusters and then hands over the clusters to the sponsors of the HAI model who then insert the clusters into the model. See Attachment B at 55-56 (Excerpts from Deposition of Douglas Denney).

Because the data that TNS uses to create the clusters are deemed to be highly proprietary, even the sponsors of the HAI model apparently are not given access to the data. As a result, the sponsors of the model have no way to evaluate the accuracy of the customer location data or even to determine how TNS created the clusters. The Joint Intervenors literally do not know whether the customer location data provided to TNS by the sub-vendors is accurate or whether the customer clusters that TNS created properly reflect the customer location data. In his deposition, Mr. Denney acknowledged that he has not seen "the data that TNS had collected" and "did not look at the specific cluster data in Arizona." Id.

C. **The Unavailability of the Data Used to Establish Customer Locations and Clusters Requires that the HAI Model be Stricken.**

The unavailability of the data that TNS used to establish customer locations and to create clusters precludes a meaningful analysis of whether the HAI model builds enough network plant and includes enough network-related investment to serve customers in Arizona. A brief example demonstrates the severity of the problem caused by the unavailability of these data.

For purposes of this illustration, assume that the customer location data that TNS obtains from its sub-vendors shows that the customers in a rural serving area are uniformly located one mile apart from each other. If TNS created a cluster that placed these customers only a half mile from each other, the HAI model would include less distribution plant and related investment than is actually needed to serve these customers. A repeated lack of correlation between the sub-vendor customer location data and the clusters that TNS creates could lead to significant inaccuracies in the amount of outside plant and related investment that the HAI model includes.

Precisely to avoid this type of result, the Commission has consistently required that cost studies be open to scrutiny, and that parties sponsoring studies produce the data that they use in

1 their studies. See, e.g., In the Matter of the Application of U S WEST Communications, Inc., a

2 Colorado Corporation, for a Hearing to Determine the Earnings of the Company, the Fair Value

3 of the Company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon

4 and to Approve Rate Schedules Designed to Develop Such Return, Docket No. T-01051B-99-

5 0105; In the Matter of the Application of U S WEST Communications, Inc. for Changes In Its

6 Depreciation Rates, Docket No. T-01051B-97-0689; In the Matter of the Petition of American

7 Communications Services, Inc. and American Communications Services of Pima County, Inc.

8 for Arbitration with U S WEST Communications, Inc. of Interconnection Rates, Terms, and

9 Conditions Pursuant to 47 U.S.C. § 252(b) of the Telecommunications Act of 1996, Docket Nos.

10 U-3021-96-448, U-3245-96-448, E-1051-96-448.

11 In this case, the unavailability of the core data used in the HAI model renders the model

12 unreliable and unfit for use in setting rates in this proceeding. The Commission should strike the

13 model and all testimony relating to it from this proceeding.

14 **III.   CONCLUSION**

15 For the reasons stated, the Commission should strike the HAI model and all testimony

16 relating to the model.

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RESPECTFULLY SUBMITTED this 11th day of July, 2001.

QWEST CORPORATION

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CERTIFICATE OF SERVICE

A copy of the foregoing has been mailed and/or faxed on this 11th day of July, 2001, to the following:

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A

THE ARIZONA CORPORATION COMMISSION

WILLIAM A. MUNDELL
  Chairman
JAMES M. IRVIN
  Commissioner
MARC SPITZER
  Commissioner

IN THE MATTER OF)	
INVESTIGATION INTO QWEST)	
CORPORATION'S COMPLIANCE)	
WITH CERTAIN WHOLESALE)	DOCKET NO. T-00000A-00-0194
PRICING REQUIREMENTS FOR)	
UNBUNDLED NETWORK ELEMENTS)	
AND RESALE DISCOUNTS)	

DIRECT TESTIMONY

OF

DOUGLAS DENNEY

ON BEHALF OF THE JOINT CASE OF

AT&T COMMUNICATIONS OF THE MOUNTAIN STATES, INC.,

WORLDCOM, INC., AND XO ARIZONA, INC.

RE: COST MODELS

MAY 16, 2001

1   Model estimates the costs that an efficient LEC would incur to provide

2   narrowband, voice-grade telephone services in a manner that is also capable of

3   providing access to advanced services.

4   Q.   **WHAT DO YOU MEAN WHEN YOU SAY HM 5.2a IS A BOTTOM-UP**

5   **ENGINEERING AND ECONOMIC MODEL?**

6   A.   I mean that HM 5.2a constructs a network based on detailed and granular

7   information as to service demand, network component capacities and costs, and

8   expenses. The Model thus contrasts with models that try to decompose total costs

9   or revenues of existing telephone companies into their constituents. The latter

10   models are often referred to as "top-down."

11   Specifically, the Model process has the following seven major steps. First, it

12   determines the amount and location of current demand for local exchange service,

13   network elements, and network interconnection for the Incumbent Local

14   Exchange Carrier ("ILEC") and jurisdiction under study. In doing so, the process

15   uses geocoded[4] customer location data when available, combined with a method

16   of assigning surrogate locations when geocoded location information is not

17   available for all customers. This step is described in Section 5.3 of Exhibit DKD-

18   2, and reflects a state-of-the-art approach to more precisely determining customer

19   locations.

20   Second, the process groups, or "clusters," adjacent customers, and associates

21   those clusters with serving areas that can be efficiently served by available local

---

[4] A geocoded customer location is one where a customer address can be precisely located (i.e. latitude and longitude can be determined).

11

1 exchange technology. In doing so, it determines the size, shape, location, number

2 of lines, and serving wire center of each such cluster. The clustering process is

3 described in Section 5.4 of Exhibit DKD-2. Once these clusters are identified, the

4 process incorporates jurisdiction- and/or company-specific data on local terrain

5 attributes and assigns these attributes to the customer clusters according to the

6 cluster locations, in order to identify circumstances in which the terrain attributes

7 will cause installation costs to increase over their normal levels.

8 Third, based on the forward-looking network architecture being deployed by

9 ILECs today, the Model determines the amounts of various network components

10 needed to support the known demand for the elements and services in question.

11 In doing so, it employs numerous optimization routines that ensure 1) the use of

12 outside plant structures that are most technically and economically suited to

13 particular local conditions; 2) the appropriate economic choice of feeder

14 technology between copper cable and fiber-based digital loop carrier systems; 3)

15 at the user's option, the appropriate economic choice between wireline and

16 wireless distribution systems; and 4) efficient interoffice fiber optics transport

17 rings based on the widely-used Synchronous Optical Network ("SONET") family

18 of standards.

19 Fourth, using public information and opinion from subject matter experts on the

20 availability, capacities, and costs of network assets and facilities available in the

21 marketplace today, which are provided to it through user inputs, the Model

22 estimates the investment required to purchase and deploy the requisite quantities

23 of each identified component considering detailed engineering design, material,

1   the convex polygon that defines the cluster;[10] and 2) aspect ratio is the same as the

2   aspect ratio of the minimum rectangle that bounds the original cluster shape.

3   Thus, customers belonging to main clusters end up within the confines of a

4   "rectangularized" cluster shape that allows the Model to estimate the type and

5   amount of outside plant required to serve each cluster. As I have mentioned

6   before, the aspect ratio is now calculated based on the actual orientation of the

7   bounding rectangle, rather than being projected onto north-south and east-west

8   axes. The cluster type and shape information, as well as other data about each

9   cluster as listed in the Cluster Input Data Table in Section 6.1.1 of Exhibit DKD-

10   2, including the strand distance calculated by HM 5.2a, become the demographic

11   input data for the Model calculations.

12   Q.   WHAT DOES THE MODEL DO WITH THE INFORMATION THAT

13   RESULTS FROM THE LOCATION AND CLUSTERING PROCESS?

14   A.   HM 5.2a treats each main cluster identified during the clustering process, along

15   with its associated "outlier" clusters, as a serving area. As described in Section

16   6.3 of Exhibit DKD-2, the Model extends copper or fiber feeder cable to each

17   main cluster. From there, copper distribution cable extends throughout the main

18   cluster to reach the customers in the main cluster. If the distances involved

19   exceed the maximum copper loop distance set by the user, the main cluster is

20   divided into two or more sub-clusters, and fiber feeder is extended to terminals

21   and Serving Area Interfaces located in each of the sub-clusters. Copper cables,

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[10] A convex polygon is one whose internal angles are less than 180 degrees, meaning that it "bulges outward" at each of its vertices.

B

1   BEFORE THE ARIZONA CORPORATION COMMISSION

2   Docket No. T-00000A-00-0194

3   _____

4   DEPOSITION OF DOUGLAS DENNEY

    _____

5

6   IN THE MATTER OF THE GENERIC INVESTIGATION INTO
    U S WEST COMMUNICATIONS, INC.'S, COMPLIANCE WITH

7   CERTAIN WHOLESALE PRICING REQUIREMENTS FOR UNBUNDLED
    NETWORK ELEMENTS AND RESALE DISCOUNTS.

8

    _____

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                            1899 Wynkoop

10   Suite 700

                            Denver, Colorado

11   Tuesday, June 19, 2001

12

13   PURSUANT TO NOTICE, the deposition of

14 DOUGLAS DENNEY, called for examination herein, was

15 taken commencing at 1:09 p.m., on June 19, 2001, before

16 Aimee S. Reisinger, a Registered Professional Reporter

17 and Notary Public in and for the State of Colorado.

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1 between the two -- between the two models. Now we're
2 using the MST method and we weren't using that in 5.0a.
3 Also the -- the ways of locating customers are
4 different between the two models. The surrogate
5 customers were placed on census block boundaries and
6 now they're placed on road -- roads within a census
7 block.
8   Q. Why would that decrease the amount of
9 cable miles?
10   A. Well, it's in -- I believe that the --
11 overall, that the placing customers uniformly on roads
12 within a census block put -- it ended up customers were
13 closer together than when we used the surrogating
14 methodology of spreading them along the outside of
15 census blocks, therefore, the amount of distribution
16 cable could be smaller because the surrogate of where
17 the customers are is closer together.
18   Q. How about if you -- as compared to
19 2.2.2?
20   A. I haven't made that comparison.
21   Q. Do you know what PNR customer location
22 data is?
23   A. Do I know what it is?
24   Q. Yes.
25   A. Depends on the context you're using it.

1 I believe that's the data that PNR actually gathered
2 for us in creating the clusters. It's the customer
3 location data they gathered.
4   Q. You used PNR data?
5   A. We -- the data came, as we talked about
6 earlier, from the Dunn & Bradstreet and MetroMail, but
7 PNR is the group -- they're now called TNS -- who put
8 that data together, who actually collected that data
9 and created the clusters.
10   Q. For any of the clusters in Arizona, did
11 you compare the -- we might as well start calling it
12 the right thing -- the TNS data to the cluster?
13   MS. STEELE: Objection, the question is
14 vague and ambiguous.
15   A. I don't understand what you're asking.
16   Q. (By Mr. Cutler) Did you compare the
17 locations in the clusters -- for any of the clusters
18 that you created for Arizona, did you compare the
19 location of the customers in those clusters with the
20 TNS data?
21   A. I did not go and look at the data that
22 TNS had collected, the individual customer points.
23   Q. Did you use it?
24   A. Yes, I used -- what they gave -- handed
25 off to me are clusters is what's used in the model.

1 And so I did -- so I used the clusters of customers
2 from the model.
3   Q. You used their locations?
4   A. They used the locations and they put
5 that into -- assigned those locations to clusters.
6   Q. So they took the actual locations and
7 developed the clusters from the actual locations?
8   A. That's right.
9   Q. What did you use the MetroMail data for
10 then?
11   A. They used -- that was their source for
12 the residential locations.
13   Q. Okay. And they used the D&B for the
14 business locations?
15   A. That's right. And I'd have to -- again,
16 I'd have to the check on the D&B, but I'm pretty sure
17 that was the source for that.
18   Q. Did you ever look at the PNR -- excuse
19 me, the MetroMail and the D&B data that PNR used?
20   A. I did not look at the specific cluster
21 data in Arizona, no.
22   Q. Did you ever personally check to see
23 that in your opinion they had correctly coded the
24 cluster -- the customers into locations?
25   A. I did not look at the location data. I

1 have looked at the location of some of the clusters
2 that they created, and they are where people are in
3 the -- around wire centers where people are. So I have
4 looked at some of the clusters. I have not looked at
5 the individual customer location data.
6   Q. What I'm having trouble understanding is
7 how you could do that without looking at the individual
8 customer location data?
9   A. Each cluster as it's used in the model
10 contains not the locations of each customer, but the
11 number of customers in that cluster, the size of that
12 cluster, and also the relationship of that cluster to
13 the switch that's serving it. So I can use that
14 information to determine are the clusters where groups
15 of people are.
16   Q. As a general matter?
17   A. That's right. But I'm not looking at
18 individual points -- you know, the longitude and
19 latitude data that PNR used, I did not look at that in
20 Arizona.
21   Q. PNR created a cluster with individual
22 customer location points, right?
23   A. I guess just TNS. I made that mistake
24 as well, but I should call them TNS. And they used
25 individual customer location points to create their